Welcome to
Software Engineering (IT314)

Lab 1
Introduction to Agile

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Course Instructor: Prof. Jayprakash Lalchandani

DA-IICT

Instructions

Class will be divided into group of 2 and 6 students respectively

12 TAs:

- Kalgi Gandhi (201721004)
- Anshul Bhaware (2021PCS2029)
- Devanshi Chandegra (202011060)
- Mahir Shah (202011002)
- Kavan (202111007)
- Vaishnavi (202111051)
- Dhara Mehta (202111054)
- Nimmi Patel (202011016)
- Harshal Vora (202111017)
- Pinak Gajera (202111063)
- Jash Rathi (202011070)
- Aman Sinha (2021PCS2027)

Lab: Monday (2:00-5:00)

Lab Submissions: Google Classroom

Evaluation

- Weekly Lab Evaluation
- Project Presentation
- Research Paper Presentation

60% Weightage

- Mid Sem Exam
- End Sem Exam

40% Weightage

Weekly Lab Evaluation

- Weekly Lab Evaluation
- 10 marks for each lab
- Submission format and other details will be conveyed lab-wise
- It will be a Group or Multi-Group Submission
- Each group has a team leader
- Only team leader needs to submit the assignment, rest needs to turn on

Project Presentation

- Google form will be uploaded on Classroom
- Choose Project Title
- First Come First Serve, to avoid clashes
- Iterative procedure
- All the details will be uploaded on Classroom soon

Research Paper Presentation

- One journal paper you need to read, understand, and present
- Google form will be uploaded on Classroom
- Choose Research Paper Title
- First Come First Serve, to avoid clashes
- Iterative procedure
- All the details will be uploaded on Classroom soon

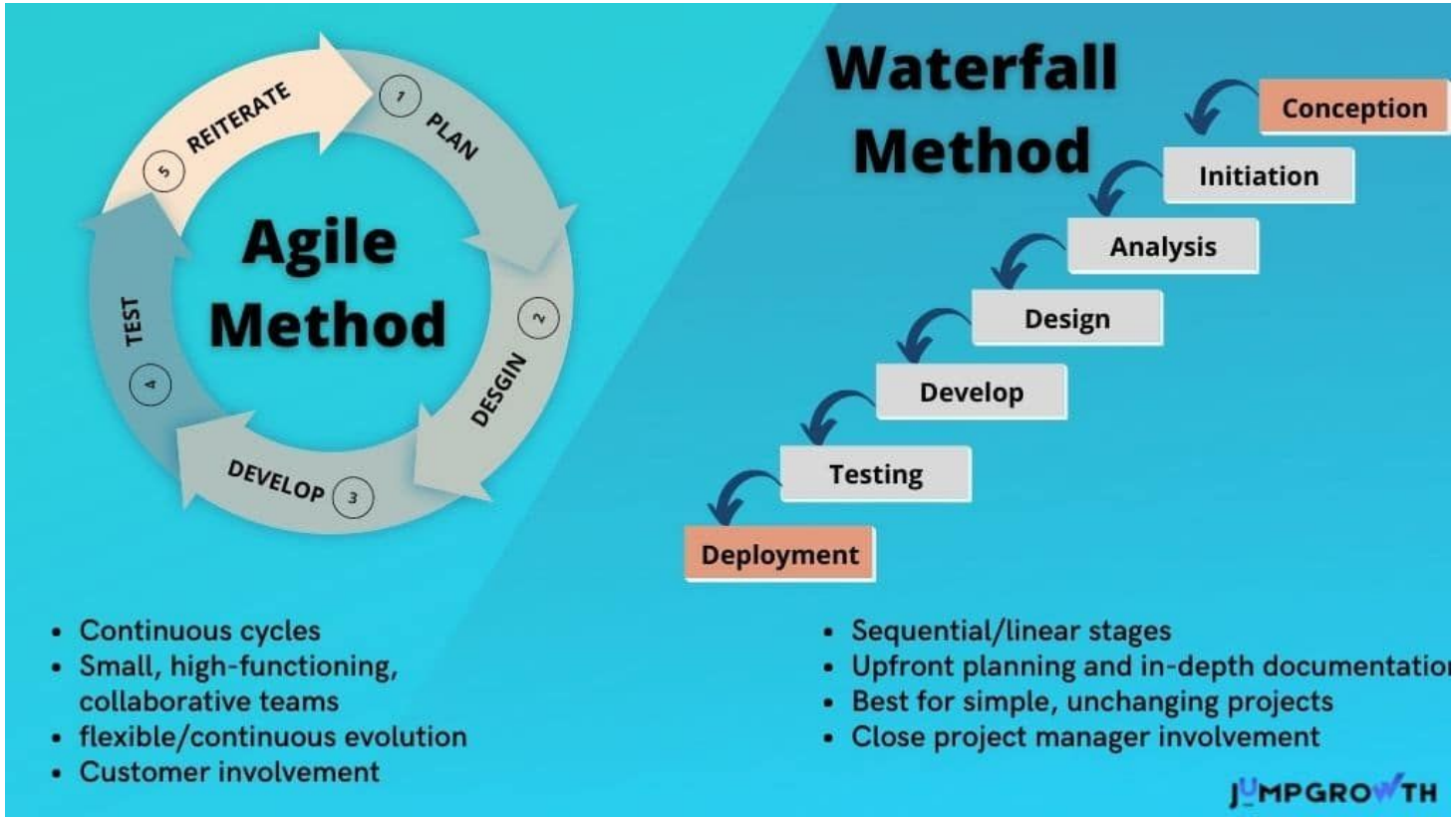
Agile Manifesto

- The Agile Manifesto is a document that outlines the central values and principles of Agile software development
- The four Agile Manifesto values are:
  - Individuals & interactions over processes and tools
  - Working software over comprehensive documentation
  - Customer collaboration over contract negotiation
  - Responding to change over following a plan
- Why is Agile Manifesto important?

  The Agile Manifesto is a valuable resource for software development terms as it equips them with flexible framework to guide their project management processes and uphold Agile best practices

Benefits of Agile

- Benefits of Agile
  - Satisfied customers
  - Improved quality
  - Adaptability
  - Predictability
  - Reduced risk



Agile SDLC

- Agile SDLC is structured series of stages that a product goes through as it moves from beg to end

Building an Agile Team Structure

- An Agile team structure is a framework used to arrange the various elements of a team working on an Agile project
- These elements include the project activities, workflows, and team roles
- Agile Team: Key roles and responsibilities
    - Developer
    - Product Owner
    - Scrum Master
- How to build Agile Team Structure:
    - Choose your model
    - Assign roles
    - Stay adaptable

A guide to scaled Agile Framework (SAFe)

- SAFe incorporates knowledge from four different areas: Agile development, Lean product development, systems thinking, and DevOps
- The core values of SAFe
    - Alignment
    - Built in quality
    - Transparency
    - Program execution
- Benefits of SAFe
    - Better engagement
    - Simplified structure
    - Faster time to market

Agile and Lean Portfolio Management

- A portfolio manager is someone who selects the right projects and programs to invest in at the right time
- Agile Portfolio Management: One of the Agile Manifesto's core values is "responding to change over following a plan"
- Lean Portfolio Management: The overall goal of lean is to maximize value while minimizing waste
- It includes 5 principles:
  - Define value
  - Map the value stream
  - Create flow
  - Determine pull based on customer needs
  - Seek perfection

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The Spotify Model I

- Music streaming platform Spotify is one of the world's most recognizable companies. Founded in 2006, it has rocketed in popularity and now joins technology giants such as Apple, Microsoft, and IBM in embracing the Agile methodology
- The aim was to provide an insight into how the company organizes its teams and maintains an Agile mindset
- The whitepaper outlined four key groups:

Squads

- A squad is a small unit of people (usually between six and 12) working together on a long-term mission
- These teams work autonomously through the various stages of software development
- Spotify squads choose their own project management methodology, be it Scrum, Kanban, or an alternative option
- There is no official leader, but a product owner will prioritize the squad's work without getting directly involved in the working process
- Squad members also have an Agile coach to guide them through the project

The Spotify Model II

Tribes

- A tribe is a group of squads working in related fields
- It is designed to have no more than 100 members — this is in line with a concept known as Dunbar's number, which suggests that stable social relationships are difficult to maintain in groups larger than 100 people
- There is a tribe lead who will help encourage productivity and innovation among the various squads
- Spotify tribes gather regularly to share updates, offer insights, and showcase new products

Chapters

- A chapter is a collection of people who share a similar skill set and work in the same tribe
- The chapter is led by a line member, who is also a squad member
- Spotify chapters work across different squads and hold regular meetings to discuss their specialized area

The Spotify Model III

Guilds

- A guild is a wider community of people who share the same interest
- While chapters exist in a single tribe, a guild can include members from multiple tribes
- There is a guild coordinator who helps to unite all the different members
- Spotify guilds are designed so members from any area can come together to share their knowledge and best practices
- These groups were specifically formed to maintain an Agile philosophy at Spotify as its developer headcount rapidly grew in size

Agile Transformation

- Agile Transformation is when an organization transitions fully to an Agile approach
- For a company to be truly Agile, every employee across every department must embrace the values & principles outlined in Agile Manifesto

The Agile Work Structure I

- There are four primary sections in Agile project management: themes, epics, stories, and tasks

Themes

- A theme is a wide area of focus that helps an Agile team to keep track of their organizational goals think of it as a label that can be used to group similar activities
- A theme helps to define the common characteristics between different areas and unite them under one heading

Epics

- An epic is a substantial collection of smaller stories that combine to make one large story. An epic cannot be completed in a single Agile iteration (or sprint)
- The key element to an epic is that it takes a lot of time

The Agile Work Structure II

Stories

- A story, also referred to as a user story, is a short-form request that can be delivered in one sprint
- It is written in simple language from the perspective of the user. Story points are used to measure the complexity of a story
- The overall goal of a story is to provide value to its user within a set timeframe

Tasks

- A task is a subsection of a story
- It helps to break the story down and outline how it will be completed. Tasks tend to be more technical as they are used by members of the development team (e.g., a quality assurance tester) rather than a front-end user.
- There are other grouping terms that crop up when working within an Agile structure
- These terms include initiatives and features

The Agile Work Structure III

Initiatives

- An initiative is a group of epics
- It can incorporate epics from lots of different teams, but they will all have a common objective
- An initiative will naturally take more time than an epic

Features

- A feature refers to a certain functionality or service that satisfies a stakeholder’s need
- Each feature must outline the criteria involved and offer a specific business value

Benefits of Epics

- Better organization
- Improved time management
- Clear client priorities

Example of Epics

A mobile app

In this example, the epic is a new mobile app to accompany an online beauty retailer

An app development team will be assembled to tackle the various user stories, which could include:

- Augmented reality features so customers can virtually try on make-up
- Chatbot functionality to assist with small queries
- Discounts and promo codes for loyal customers

When all the user stories are completed, the mobile app can be tested and prepared for launch

What is a user story?

- A user story is a small unit of work in an Agile workflow
- It is a short, written explanation of a particular user's need and how it can be fulfilled
- There is no room for jargon in a user story
- It is written in easily accessible language to provide a clear picture of what the user requires
- The technical details can be discussed at a later stage
- Every user story involves a short-form request that is completed in one Agile iteration or sprint, which normally lasts about one or two weeks
- Teams measure the complexity of their user stories with story points, helping them to accurately estimate how long a particular request will take

Steps of writing user story I

Step 1: Outline acceptance criteria

- The definition of done is the set of criteria that needs to be fulfilled for your user story to be considered complete. Define the specific acceptance criteria for each user story and use it as a checklist.

Step 2: Decide on user personas

- Conduct extensive user research by creating surveys, hosting focus groups, and reading user forums. Analyze your data and search for patterns to identify your key personas.

Steps of writing user story II

Step 3: Create tasks

- Break your user story down into numerous tasks to make it more manageable. If it is a complex requirement, you can also add subtasks. Include detailed descriptions, so your team is aligned on what each task requires.

Step 4: Map stories

- Use story mapping to structure work in a large process. In this case, your user stories will take the form of ordered steps.

Step 5: Request feedback

- Speak to users and potential customers to find out what they want. Ask them for their opinions on existing products or if they have suggestions for new features. Incorporate this feedback into your user story.

Story Point Estimation

There are three key factors in the story point estimation process:

- Complexity: How difficult is the user story? Does it require a lot of steps to complete?
- Risk: What are the potential risks involved? These could include uncertainty or dependence on a third party.
- Repetition: How monotonous are the tasks? When a team member is familiar with certain tasks, the complexity and risk factors are reduced.

Thank You